

The 1797–1814 Slump and the Adaption of the Catalan Cotton Industry*

Yoshitomo OKUNO

When attempts were being made to create modern Spain as a “nation state”, that is, to invent “*la Nación Española*”, the language, culture and history of Castile was designated to be the overall Spanish national language, culture and history. However, the region we are dealing with here is Catalonia which has its own language, culture and history that is different to that of Castile.

Catalonia was the most industrial region in 19th and 20th century Spain, so it was called “*la Fábrica de España* (the Factory of Spain)”. Catalonia was the only region in Spain where an industrial revolution took place. This revolution was cotton-based, similar to other advanced regions in Europe.

In other words, though the political center of Spain has been in Castile, with the national capital being Madrid, the economic center of Spain has been in Catalonia, which has been geographically peripheral and politically marginal in Spain. This is a core politico-economic structure of Spain which still continues today.

As mentioned above, it was the cotton industry that played a key role in the process of Catalan industrialization. But the path that the Catalan cotton industry took was not easy.

The Catalan cotton industry developed significantly during the 1780s and 1790s of the eighteenth century. But from 1797, Spain suffered a series of wars, namely, a war with England from 1797 to 1801, followed by a second war with England from 1805 to 1807, and most seriously the Peninsular War which in the

history of Spain is called *la Guerra de Independencia*, and in the history of Catalonia *la Guerra del francès*, from 1808 to 1814. Additionally, this war resulted in the emancipation of Spanish American Colonies and a politico-institutional disorders which continued until the 1830s. It was the period known as “Spanish Ancien Régime Crisis (*Crisis del Antiguo Régimen*)”.

Therefore, the following is the traditional explanation of what happened to the cotton industry in this period. Although there were signs of some industrialization in the Catalan cotton industry before the Peninsular War, this war reduced the industry to ashes, and the industry remained stagnant for a few decades. It was in 1833 that Catalan industrialization proper began with the establishment of Bonaplata factory called *El Vapor* where steam power was installed for the first time in Spain.

From that moment, in the Catalan cotton industry, well known processes such as the transformation of the industrial structure with the adoption of a hierarchical organization of work, the adoption of methods of strict control over the workforce, the introduction of specialized machines and the use of new converters and new energy resources were being established. The manual spinning machine became more and more redundant.

However, was this really how it unfolded? Was there such a significant interruption during the 25 years from 1808 to 1833? Was the Catalan cotton industry stagnant for such a long time? And did the modern industry begin suddenly with the establishment of the *El Vapor* factory?

This type of interpretation was advocated by Jordi Nadal¹ and was developed by Jordi Maluquer de Motes².

* This article is a revised version of a paper presented at the session “Business cycles, depressions and their effect on longterm development, 1793–2015” during the XVIITH World Economic History Congress held at the Kyoto International Conference Center, 03-07.08.2015.

1 NADAL (1975)

2 MALUQUER DE MOTAS (1984), (1985), (1994), (1998)

These are well known and important economic historians who built the foundations of contemporary studies in Catalan economic history, but even so they were not free from the limitations of the times and the sources available to them.

However according to the recent studies, such as that of Alex Sánchez³, the process toward the modernization of the cotton industry had already started in 1797 when the war with England broke out, and prior to the 1808, this process reached a level that cannot be underestimated in any way. Moreover, whilst acknowledging that during six years of the Peninsular War (1808–1814) the Catalan cotton industry had to stop almost all production, but once the war ended, not only was production resumed but also the process of modern industrialization once more commenced its steady evolution.

In another words, when the Catalan manufacturers realized that the crisis known today as “Spanish Ancien Régime Crisis” was destroying the entire model of economic relationships that had presided over the growth of the eighteenth century Catalan economy, they set about modernizing the Cotton industry to overcome this crisis. This process had started in 1797 and was further consolidated after the Peninsular War. Admittedly the crisis restrained the quantitative expansion of the Catalan cotton industry, but on the other hand during this period of crisis the industry evolved in a qualitative sense.

So then, how did the crisis deepen the process concretely? How did the Catalan cotton industry and the Catalan manufacturers develop the process in real term to overcome the crisis? This article aims to answer this question⁴.

1. Differences between the traditional interpretation and recent studies

If one look at the two tables below, one can see some differences. As mentioned

3 For example, SÁNCHEZ (2000), (2010), (2011); SÁNCHEZ & VALLS (2015).

4 Among recent studies on the 18th and 19th Catalan cotton industry, the works that focus on the manufacturers responses to the crisis are a series of studies by Sánchez and Valls cited in Note 3. Therefore, the arguments will being developed here will be based on these studies.

in the preface, while the traditional explanation argued that the process of modern industrialization began in 1833, according to recent studies, the process actually began in 1797 and resumed shortly after the interruption caused by the Peninsular War (the war with Napoleonic France during 1808–14), and in fact deepened as a response to the post war crisis. This difference is clearly shown in Tables 1 and 2.

Table 1 Estimation of spindles in active use in the Catalan cotton industry between 1835 and 1861 (Nadal 1975)

			1835	1841	1850	1861
Manual spindles (Jennies and <i>Bergadanes</i>)			691,949	315,162	183,778	7,366
Mechanical spindles						
<i>Continuas</i> (Throstles)				22,744	51,040	?
Mules			27,220	323,937	475,490	?
<i>Selfactines</i> (Self-acting Mule)					96,328	?
Total mechanical spindles			27,220	346,681	622,858	763,051
Total spindles			719,169	661,843	806,636	770,417
Mechanical spindles / Total spindles			3.78%	52.38%	77.22%	99.04%

Source: Nadal (1975)

Table 2 Estimation of spindles in active use in the Catalan cotton industry between 1807 and 1856 (Sánchez 2000/2011)

	1807	1829	1836	1841	1850	1856
Manual spindles (Jennies and <i>Bergadanes</i>)	82,870	290,700	457,200	446,400	183,778	
Mechanical spindles						
Water-frames	10,890					
<i>Continuas</i> (Throstles)		7,028	12,800	19,800	51,040	70,360
Mule-jennies	2,040	70,285	181,047	326,523	475,490	388,650
<i>Selfactines</i> (Self-acting Mule)					96,328	437,054
Total mechanical spindles	12,930	77,315	193,847	346,323	622,858	896,064
Total spindles	95,800	386,013	651,047	792,723	806,636	896,064
Mechanical spindles / Total spindles	13.50%	20.03%	29.77%	43.69%	77.22%	100.00%

Source: Sánchez (2000/2011)

Table 1 (Nadal 1975) shows that while the ratio of mechanical spindles in 1835 was only 3.78% out of a total number of 27,220 spindles, in 1841 the ratio of

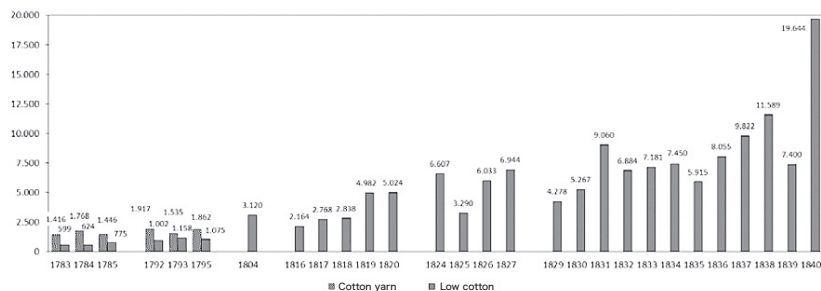


Figure 1 Importation of cotton through the Port of Barcelona (in thousand of catalan “lliures” of wheat)

Source: Sánchez & Valls (2015)

mechanical spindles increased dramatically to 52.38% and the number of spindles to 346,681.

In light of these figures, Nadal and Maluquer believed the reasons for the major change came with the establishment of the Bonaplata factory where steam power was installed for the first time. That is to say, they considered that the increase in the spinning mules was due to factories equipped with steam power.

As Nadal himself pointed out, already by 1819–20 the amount of raw material had recovered to the level prior to the Peninsular war and was increasing steadily (see Figure 1). But, according to Nadal and Maluquer, that was only a quantitative development due to the expansion of manual spinning, and was not a measure of the qualitative development.

In contrast, in Table 2 (Sánchez 2000/2011), the ratio of mechanical spindles in 1807 prior to the Peninsular War had already reached 13.5%. Moreover, while in Table 1 (Nadal 1975) water-Frames and “throsles” (improved version of the water-frames called *continuas* in Spanish) did not appear until 1841, in Table 2 the number of water-frames spindles had already reached 10,890.

Furthermore, in Table 2, the ratio of mechanical spindles in 1829, prior to 1833, reached 20.03%, the number of spindles amounted to 70,285. In 1836 the ratio of mechanical spindles increased to 29.77% and the number of mules spindles

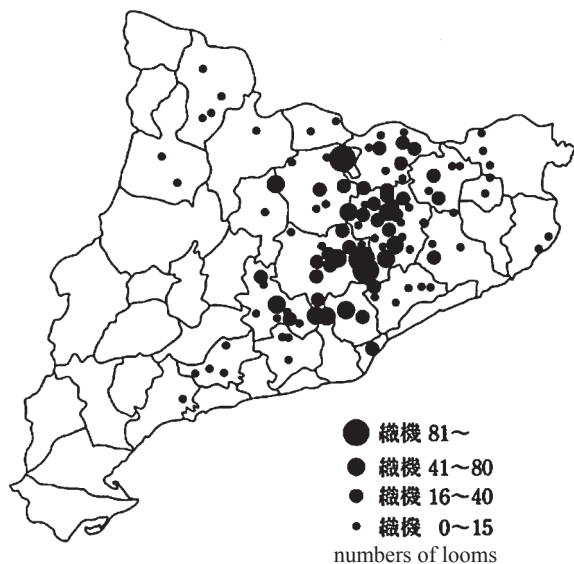
was 181,047. That is to say, from this result, according to recent studies, it is now believed that steam power factories did not increase the number of mules. Instead, the demand for more mules required the introduction of steam power.

2. The Catalan cotton industry before 1797 and the development model in the 18th century

1) 1736–1782

Before examining the concrete responses of the Catalan cotton industry to the crisis, we will look at the situation of the industry before 1797.

18th century Catalonia was a time of remarkable economic development. The starting point of this development was when southeastern Catalonia began to specialize in viticulture and the fabrication of brandy (called *aiguardent* in Catalan) at the end of the 17th century in response to demand in northwestern Europe, especially in the Netherlands. (See Map 1).



Map 1 Woollen industry loom distribution in 1764

Source: Torras(1984)

As a response to this specialization by southeastern Catalonia, northeastern Catalonia started to specialize in the woolen industry, and this industry grew not only due to demand in southeastern Catalonia but also penetrating into the Spanish interior market (See Map 2)⁵.



Map 2 Distribution of brandy distillations in 1793

Source: Torras (1976)

Furthermore, clothing from northwestern Europe was imported in exchange for the brandy⁶. It is believed that the relatively equitable distribution of the wealth in 18th century Catalonia contributed to the consumption of these imported textiles⁷.

It was under these conditions that the Catalan cotton industry was born in Barcelona in 1736 as an import substitution industry similar to other advanced European regions. Asian calicos (painted or printed plain-woven cotton textile) was

5 TORRAS (1976), (1984), (1994), (1996).

6 VALLS (1999), (2004).

7 MALUQUER (1984), (1985).

in fashion and very popular in the 17th and 18th centuries Europe, being seen as hygienic and comfortable, and having exotic patterns. European cotton industries were born as an import substitution industry for these Asian calicos. The Catalan cotton industry was one such case.

Two import bans were issued by the Bourbon Spanish government; One was issued in 1718 and prohibited the import of Asian textiles. The other ban, issued in 1728, prohibited the import of cotton clothes and printed textiles from Asia and Europe. This stimulated the birth of the industry. The abundant commercial and industrial management resources in Barcelona also played an important role in the formation of the industry.

The firms which produced printed calico were called *fàbriques d'indianes* (calicos factories). *Indianes/indianas* means calicos in Catalan and in Spanish. In *fàbriques d'indianes*, weaving and printing were integrated in the same building. It was a so-called proto-factory. The spinning phase was not integrated with Maltese yarn being imported. It is believed the reason for importing Maltese yarn was to save on the cost of incorporating the spinning phase and the good financing conditions that Maltese merchants offered⁸.

Table 3 The cotton industry (=the calico printing industry) in Barcelona in the 18th century

Year	Factories	Looms	Printing tables	Employees	Printed calicos (=printed cotton) (meters)	Printed linen (meters)	Total printed clothes (meters)
1740	3	100		300			
1750	8						
1760	17						
1768	22	634		2,500			1,430,000
1784	79	2,280	1,019	8,251	5,190,000	5,125,000	10,315,000
1791	84	2,628		11,848	2,036,000	4,816,000	6,852,000
1797	89	2,800		6,590	3,355,000		3,355,000

Source: Sánchez (2011)

⁸ On the birth and first phase of the Catalan cotton industry, see SÁNCHEZ (1989), (2011), THOMSON (1994), (2008b).

2) 1783–1797⁹

Once the American War of Independence was over in 1783, the Catalan cotton industry entered a new stage of development. In exchange for the exported brandy to northwestern Europe, a large amount of linen cloth (white linen) produced in Silesian and northern France were imported into Barcelona, where they were printed in *fàbriques d'indianes* (calicos factories) and re-exported to Spanish America¹⁰. In exchange for the export of this printed linen, raw cotton was imported in stable quantities and prices¹¹.

While the most of the printed linen was exported to Spanish America (about 70%), printed calicos were principally consumed in the interior market. In the colonial market, linen clothes was preferred to cotton clothes. Linen clothes was the most representative industrial product of Europe that was exported to Spanish America from the 17th century. In any case, as a result, as shown in Table 4, Barcelona was probably the largest production center for printed clothes (both printed linens and printed calicos) in Europe.

The import of raw cotton from Spanish America was necessary in order to destroy the monopolistic situation in which Maltese merchants exclusively supplied raw materials (Maltese yarn). It also meant securing good quality yarns made from raw cotton.

In this period, not only was the spinning process introduced into Catalonia using mainly management resources of the rural woolen industry¹², but also the

9 This section is based on SÁNCHEZ (2000), (2011), SÁNCHEZ & VALLS (2015), VALLS (1994), (2004).

10 In 1778, the “Free trade decree” enacted that; if foreign products were processed in Spain and its aspect changed, these products could be exported with low custom duties on an equal footing with national products. It is believed that this measure was able to stimulate the export of printed linens. On this point, see especially DELGADO (1987), NADAL (1991).

11 The export of printed linen and the import of raw cotton was being carried out under the initiative of the *Companyia de filats de Barcelona* (Barcelona Yarn Company) which was the cotton manufacturer’s association. I will argue this point in more detail in follow-up article.

12 On this point, especially OKUNO (1999).

Table 4 Main printed calicos production centers in Europe, 1785–1800

Cities	Yeas	Facotries	Employees	Productions (meters)
Barcelona	1784	79	8,251	10,315,000
Barcelona	1791	84	11,848	6,852,000
Barcelona	1784/1791	81	10,240	8,680,000
Manchester	1785	45		
Rouen	1785	38		3,400,000
Glasgow	1785	27		
Hamburg	1790–1800	21	3,200	
Mulhouse	1786	19	3,300	3,300,000
Dublin	1785	14		
Lyon	1785	14		560,000
Paris	1785	13		2,900,000
London	1785	13		
Blackburn	1785	12		
Ghent	1793	12	881	
Prague	1787	12	936	
Geneva	1790	11	2,470	
Neuchâtel	1797	6	1,604	2,300,000
Augsburg	1790–1800	9	3,200	
Nantes	1785	8		2,500,000

cf.

England	1784–7			12,400,000
France	1785			16.000.000
Switzerland	1790			12,373,158

Source: Sánchez (2011). The figures for the production of England, Frnace and Switzerland, Thomson (1990), Chapman & Cbassagne (1981).

Note: The figures for Barcelona production include printed linen clothes in addition to printed calicos.

Table 5 Breakdown of printed clothes produced in Barcelona

	Printed calicos (=printed cotton)	Printed linen	Total
1784	5,190,000	5,125,000	10,315,000
1791	2,036,000	4,816,000	6,852,000

Source: Sánchez (2011)

incipient modernization of spinning took place. The spinning jenny was introduced in 1784, the proto-type for the “*bergadanes*” (improved version of the spinning jenny in Catalonia) was invented in 1792, and “water-frames” were introduced in 1793. In any case, these machines (except for water-frames) were moved basically by hand, therefore they did not change the domestic industrial nature of cotton spinning. The printing of imported white linen caused for tendency of *fàbriques d'indianes* (calicos factories) to specialize in printing, leading to the abandoning of weaving process, and the subsequent emergence of weaving firms in Barcelona as well as in the rural areas of Catalonia.

3. The start of the industrial process and the wars with England, 1797–1808¹³

The year 1797 marked the beginning of a war period crisis that lasted 18 years (1797–1814). As mentioned earlier, three wars took place in quick succession almost without interruption, a war with England (1797–1801), a second war with England from (1805–1807), and the Peninsular War (with Napoleonic France, 1808–1814).

In the first war with England that began in 1797, the English naval blockade placed the maritime connections and commercial exchanges of Catalonia into serious difficulties. It caused a sharp decline in the export of brandy to and the import of white linen from northwestern Europe. It also caused a decline in the export of printed linen to and the import of raw cotton from Spanish-America, along with a reduction in imports of Maltese cotton yarn. All such trade decreased sharply.

As a result, the economic model that played a role as the base of the development of 1783–97 had begun to collapse. In addition, the Catalan manufacturers were recognizing the decline in the economic model. Therefore, to overcome such a critical situation, the manufacturers set about modernizing the cotton industry.

13 The arguments in the following chapters 3, 4 and 5 are mostly based on SÁNCHEZ (2000), (2010), (2011); SÁNCHEZ & VALLS (2015). Also see Notes 3 and 4.

In response to such a situation, for Catalan manufacturers, there was no other way to focus on the interior market and devote this effort to fabricate printed calicos, and diversify countries and regions from which raw cotton was imported. Furthermore, the purchasing power of the Spanish interior market was weak, and in such a market the Catalan cotton industry had to compete with woolen and linen clothes which were produced by Spanish local industries, and smuggled foreign printed textiles, that is, foreign Calicos and foreign printed linen. To overcome such circumstances, the Catalan manufacturers had to begin to modernize (mechanization and concentration of labor power) the cotton industry in order to improve quality and reduce prices.

In fact, from 1797, the spinning mills which had water-frame and moved by water power or animal power were being established in traditional rural industrial areas of Catalonia as well as in Barcelona¹⁴. Based on this development of spinning, cotton yarn import was banned in 1802. In 1806, spinning mules were introduced in Catalonia. In response to the decline in raw cotton from Spanish America, raw cotton was newly imported from USA, Brasil and Motril (an area of Andalusia, Spain).

Furthermore, in 1802, *Companyia de filats de Barcelona* (Barcelona Yarn Company) which was the cotton manufacturer's association discussed introducing a steam engine in order to improve the utilities and in 1805, in the Jacint Ramon Factory, a steam engine was actually installed, although this attempt failed.

In 1808, when the Napoleonic French army came to occupy Catalonia, General Duhesme wrote that "from Ripoll, Olot, Vic, Mataré, Mantesa to Barcelona, Igualada, and even to Tortosa" there were the factories with "English machines" (water-frame) everywhere. It shows eloquently that the level of industrialization of

14 For details of river side spinning mills found in in the inland area of Catalonia which were equipped with water frames in this period, see SOLÀ (2004), FERRER (2004), (2009). Spinning with water frames moved by water power took root prominently in Manresa during this time. The proportion of such mills in use in Manresa became even higher after the Napoleonic war. RAVEUX & SÁNCHEZ (2010).

Catalonia at that time should not be underestimated. In other words, the industrialization and modernization of the Catalan cotton industry began in 1797, not in 1833.

4. The response to the post war crisis (1). Deepening of industrialization, 1814–1840

The process which began in 1797 stopped completely during the Peninsular War (war with Napoleonic France, 1808–1814). However, after the war, this process recontinued for 20 years from 1814 to 1833, in contrast to what the traditional explanation argues.

After the Peninsular War, there was post-war crisis that was caused by the emancipation of the colonies and politico-institutional disorders continued until 1839. The economic structure that had presided over 18th century development had begun to collapse in 1797. But now, the collapse became decisive. Moreover, this collapse occurred when the other advanced regions of continental Europe were starting to industrialize.

Indeed the post-war crisis slowed the speed of the expansion of the Catalan cotton industry, but to overcome this crisis the Catalan manufacturers were consolidating and modernizing the industry and changes in technology and organization were being advanced.

In 1815, only a year after the war ended, the association of cotton manufacturers, *Companyia de Filats de Barcelona* reported that there were more than 50 factories that were equipped with new spinning machines invented in foreign countries” and these factories were importing even more spinning machines from abroad. Although this figure of “more than 50” can only be approximated and may have been exaggerated.

The most difficult challenges did not come immediately after the war, but in the first half of the 1820s, especially 1822–25, when all disturbing factors reached

maximum level¹⁵. However, the process of mechanization advanced further, especially after 1826–27. As shown in Table 2 and Table 6, the proportion of spindles that were mechanical reached approximately 20 % in 1829, and after the 1830s, particularly after the second half of the 1830s, the ratio of mechanical spindles to total spindles increased noticeably, from about 30 % in 1836 to 43.7% in 1841. As we can see in Table 2, in the mechanization of spinning, it was the spinning mule that played the central role, and until the 1830s it was mainly to be found in Barcelona¹⁶.

**Table 6 Ratio of mechanical spindles
to total spindles (%)**

Year	Mechanical Spindles
1807	13.50
1829	20.03
1836	29.77
1841	43.69
1850	77.22
1856	100.00

Source: Sánchez(2000/2011)

After the 1840s steam engines became widespread. Indeed the Bonaplata factory was established in 1833. It was the first factory to have a steam engine installed. But the factory was destroyed in 1835 and that paralyzed the introduction of steam power for three years. In the 1830s, the number of steam engines did not exceed 10. Therefore, the spread of the spinning mule was not due to the spread of steam power. According to Sánchez “it was the spread of the mule which brought

15 Above all, one can point out as disturbing factors the actions of royalist factions in various areas inside the Principality, as well as epidemics, and the political repression that followed the end of the *Trienio liberal* (Liberal Triennium, 1820–1823).

16 In 1807, the number of mule spindles in Barcelona was about 1,770 out of a total of 2,040 for the whole of Catalonia. In 1829, the figures become 50,000 for Barcelona, and 70,285 for Catalonia. It is assumed that the vast majority of the mules used outside Barcelona were moved by water. RAVEUX & SÁNCHEZ (2010).

the spread of steam and not the contrary¹⁷”. [My translation]

Until the 1840s, when steam power began to spread, mechanical spinning, in particular the spinning mule was employing by water power and animal power (see Table 7). In rural areas with abundant water sources, water power was used. On the other hand, in Barcelona where there was a lack of sufficient water sources, animal power was used with a transmission system called *vogit*. However for Barcelona, it was difficult to reach sufficient “economies of scale” with animal power. The more spinning mules there were in Barcelona, the more it was realized that there were limitations to expansion. This is the reason why factories with steam engines began to be established in the 1830s¹⁸.

**Table 7 Power sources used in cotton factories in 1840–1841
(unit: horsepower)**

steam	less than 200
water	565
animal	1,229

Source: Sánchez (2000)

As an aside, until the spread of mechanical looms, the advancement of mechanization in spinning and factory systems, such as happened in other advanced European regions, led to the spread of weaving in the domestic industry. In Catalonia, the mechanical loom was introduced in 1829, but it was not until 1850 when it spread.

Looking at the raw cotton imports after the Peninsular war, the new trade model began to be shaped in the 1820s and consolidated in the 1830s; with the export of wine (not brandy in this case) and the importation of raw cotton. Until the 1820s, Brasil predominated as the import region, but in the 1830s, the USA took the

17 SÁNCHEZ (2000), p. 503.

18 In 1830s, the improved version of mule spread. Made of iron and equipped with an increasing number of spindles, these new machines were heavier and required more energy to run. This was another reason that we have to take into consideration. FERRER (2004), SOLÀ (2004), THOMSON (2003) and RAVEUX & SÁNCHEZ (2010).

place of Brasil.

5. The response to the post war crisis (2). Groping for the realization of a new economic policy, 1814–1840

The Catalan manufacturers founded that to promote the modernization of the cotton industry, it was crucial a new economic policy.

The economic policy that they required consisted of two pillars. The first was to secure the interior market in order to protect the cotton industry. The second was to carry out political and institutional reforms from a liberal position in order to increase consumption levels in the interior market. In view of the fact that Spain had fallen into this crisis when other advanced regions of continental Europe had begun their industrialization, Catalan manufacturers believed that this new policy was indispensable for developing the cotton industry.

The call for import bans of foreign textiles so as to promote the cotton industry was a constant demand during the second half of the 18th century. However, there were important differences between the argument put forth in the 18th century and the argument that was elaborated just after the Peninsular war and which was strongly promoted during the 1820s and 1830s. The latter argument showed, for the first time, a critical attitude toward the absolute monarchy.

It was not that the absolute monarchy of Fernando VII had a misguided policy but that it had no policy at all whatsoever. Therefore, its behavior was incoherent and the import of foreign textile goods was allowed for the companies with privileged connections to the government. In order to activate the interior market, it was essential to abolish the irrational taxes on home products and internal customs and the preferences of the upper classes for foreign goods. But it was clear that the absolute monarchy could not achieve this.

Therefore, the Catalan manufacturers, following a liberal political agenda, were seeking to establish a constitutional regime and protectionism. They believed and insisted that the Catalan cotton industry was the engine of the Spanish economy,

and that the way to activate the interior market was through the abolishment of old feudal structures which was possible only through a constitutional regime.

However, it was not easy to effect change. Although during the *Trienio liberal* (Liberal Triennium, 1820–1823) a foreign textiles ban was approved, in 1823 the absolute monarchy was restored and it continued until 1833. It was only in 1840 that the preferences of the Catalan manufacturers were realized after many twists and turns¹⁹.

Conclusion

The crisis had begun with the opening of the War with England in 1797. To overcome this crisis, the Catalan manufacturers had set about the modernization of the cotton industry (ie. the mechanization of the production process and the concentration of the labor force). This attempt was interrupted by the Peninsular War (the war with Napoleonic France) in 1808–1814. After this, in post-war Spain, economic and political disorder continued until the 1830s. But, to overcome this post-war crisis, the Catalan manufacturers deepened the modernization of the industry that had begun prior to the Peninsular War. It was this deepening that resulted in the installation of steam engines, which began in the 1830s and continued full swing in the 1840s.

After the Peninsular War, the Catalan manufacturers thought it was indispensable to have an economic policy that could promote the modernization of the cotton industry. This policy consisted of two pillars. The first was to secure the interior market in order to protect the cotton industry against foreign goods. The second was to carry out political and institutional reform from a liberal position in order to raise consumption levels in the interior market. This policy was formulated in the period just after the Peninsular War and came to fruition in the 1840s.

And so the era of crisis from 1797 to 1830s should not just be seen as a time of

19 There is still much that could be said about the economic policy. However, we cannot go into further detail here. For more information, see SÁNCHEZ (2000), pp. 512–520.

stagnation but should also be recognized as a period when the seeds of future growth were first sown.

BIBLIOGRAPHY

- BENAU, Josep M. (1995), “Cambio tecnológico y estructura industrial. Los inicios del sistema de fábrica en la industria pañera catalana, 1815–1835”, *Revista de Historia Económica*, 2, pp. 199–226.
- CHAPMAN, Stanley D. & CHASSAGNE, Serge (1981), *European Textile Printers in the Eighteenth Century. A Study of Peel and Oberkamp*, Heinemann, London.
- DELGADO, Josep M. (1987), “Conseqüències econòmiques dels decrets de comerç lliure (1765–1820)”, dins *Revista Econòmica de Catalunya*, núm.4, 1987, pp. 48–56.
- GRAU, Ramon & LÓPEZ, Marina (1974), “Empresari i capitalista a la manufactura catalana del segle XVIII. Introducció a l'estudi de les fàbriques d'indianes”, *Recerques*, 4, pp. 19–57.
- FERRER, LLorenç (2004), “Bergadanas, continuas y mules. Tres geografías de la hilatura del algodón en Cataluña (1790–1830)”, in *Revista de Historia Económica*, 22 (2), pp. 337–386.
- FERRER, LLorenç (2009), “La industrialització de Catalunya: les fàbriques tèxtils del riu Cardener al segle XIX” in *Estudis històrics i documents dels arxius de protocols*, 27, Col·legi de Notaris de Catalunya, pp. 321–366.
- MALUQUER DE MOTES, Jordi (1984), “La historia económica de Cataluña”, in *Papeles de Economía Española*, 20, pp. 268–280.
- MALUQUER DE MOTES, Jordi (1985), “La revolución industrial en Cataluña”, in SÁNCHEZ-ALBORNOZ, C. (dir.), *La modernización económica de España*, Madrid, Alianza, pp. 199–225.
- MALUQUER DE MOTES, Jordi (1994), “La gran transformació. L'industrialització i modernització a la Catalunya del segle XIX”, in NADAL, J.; MALUQUER DE MOTES, J., y SIDRIÀ, C. (dirs.), *Història econòmica de la Catalunya contemporània*, vol. I, Barcelona, Enciclopedia Catalana.
- MALUQUER DE MOTES, Jordi (1998), *Historia econòmica de Catalunya. Segles XIX i XX*, Barcelona, Proa.
- NADAL, Jordi (1975), *El fracaso de la revolución industrial en España, 1814–1913*, Barcelona, Ariel.

- NADAL, Jordi (1983). “Els Bonaplata: Tres generacions d’industrial catalans a l’Espanya del segle XIX”, in *Anuari de la Societat Catalana d’Economia*, pp. 6–19.
- NADAL, Jordi (1991), “Sobre l’entitat de la indianeria barcelonina del set-cents. Nota suggerida per la lectura d’un article d’Alexandre Sánchez”, *Recerques*, 24, pp. 183–185.
- OKUNO, Yoshitomo (1999), “Entre la llana i el cotó. Una nota sobre l’extensió de la indústria del cotó als pobles de Catalunya en el darrer quart del segle XVIII”. *Recerques*, 38, pp. 47–76.
- OKUNO, Yoshitomo (2013), “La industria cotonera catalana del segle XVIII a través del llibre de major de “Castaner”: indianes, llenços pintats, xarxes de comerciants(2)”, in *The Journal of the Faculty of Foreign Studies*, Aichi Prefectural University, 45, pp. 49–68.
- OKUNO, Yoshitomo (2014), “Una aproximació de l’estampació de llenços de lli a la indústria cotonera catalana del segle XVIII abans del decret de lliure comerç (1778)”, in *The Journal of the Faculty of Foreign Studies*, Aichi Prefectural University, 46, pp. 73–79.
- RAVEUX, Olivier & SÁNCHEZ, Alex (2010), “La adaptación tecnológica como factor de localización industrial. Una revisión de las investigaciones sobre la industria de hilados de algodón en Cataluña (1772–1885)”, *Investigaciones de Historia Económica*, Vol. 6, 17, pp. 65–94
- SÁNCHEZ, Alex (1988), *La formación de una política económica prohibicionista en Cataluña, 1760–1840*, Lleida.
- SÁNCHEZ, Alex (1989), “La era de la manufactura algodonera en Cataluña, 1736–1839”, in *Estudios de Historia Social*, 48–49, 1989, pp. 65–114.
- SÁNCHEZ, Alex (1990), *Protecció, ordre i llibertat. El pensament i la política econòmica de la Comisió de Fàbriques de Barcelona, 1820–1840*, Barcelona, Altafulla.
- SÁNCHEZ, Alex (1992), “La indianeria catalana: ábito o realidad?”, in *Revista de Historia Industrial*, 1, pp. 213–232.
- SÁNCHEZ, Alex (1996), “La empresa algodonera en Cataluña antes de la aplicación del vapor, 1783–1832”, in Francisco COMÍN i Pablo MARTÍN ACEÑA (ed.). *La empresa en la historia de España*, Madrid, Civitas, pp. 155–170.
- SÁNCHEZ, Alex (2000), «Crisis económica y respuesta empresarial. Los inicios del sistema fabril en la industria algodonera catalana, 1797–1839», in *Revista de Historia Económica*, XVIII, 3, pp. 485–524.
- SÁNCHEZ, Alex (2010), “Guerra e industria. Consecuencias de la Guerra de la Independencia en la industria manufacturera española”, in Emilio LA PARRA (ed.). *La guerra de Napoleón en España*, Alacant, Publicacions de la Universitat d’Alacant - Casa

- de Velázquez, pp. 399–424.
- SÁNCHEZ, Alex (2011), “Barcelona i la indústria de les indianes. Una presentació”, in Alex SÁNCHEZ (Coord.), *La indústria de les indians a Barcelona, 1730–1850. Barcelona, Quaderns d’Història*, 17, 2011, pp. 9–29.
- SÁNCHEZ, Alex & VALLS, Francesc (2015), “El mercado del algodón en Barcelona durante la crisis del Antiguo Régimen, 1790–1840”, *Revista de Historia Industrial*, 58, pp. 61–93.
- SOLÀ PARERA, Àngels (2004), *Aigua, indústria i fabricants a Manresa (1759–1860)*. Manresa, Centre d’Estudis del Bages.
- THOMSON, James (1990), *La indústria d’indians a la Barcelona del segle XVIII*, Avenç.
- THOMSON, James (1994), *Els orígens de la industrialització a Catalunya. El cotó a Barcelona, 1728–1832*, Barcelona, Ed. 62.
- THOMSON, James (2003), «Transferencia tecnológica en la industria algodonera catalana: de las indianas a la selfactina», in *Revista de Historia Industrial*, 24, pp. 13–50.
- THOMSON, James (2008), “The Spanish trade in American cotton: atlantic synergies in the Age of Enlightenment”, *Revista de Historia Económica*, XXVI, 2, pp. 277–313.
- THOMSON, James (2008), “La política del algodón en la España del siglo XVIII”, *Revista de Historia Industrial*, 36, pp. 15–44.
- TORRAS, Jaume (1976), “Aguardiente y crisis rural (sobre la coyuntura vitícola, 1793–1832)”, *Investigaciones Económicas*, 1, pp. 45–67.
- TORRAS, Jaume (1984), “Especialización agrícola e industria rural en Cataluña en el siglo XVIII”, *Revista de Historia Económica*, Año II, 3, pp. 113–127.
- TORRAS, Jaume (1994), “L’economia catalana abans del 1800. Un esquema”, in NADAL, J.; MALUQUER DE MOTES, J., y SIDRIÀ, C. (dirs.), *Història econòmica de la Catalunya contemporània*, vol. I, Barcelona, Enciclopèdia Catalana, pp. 15–38.
- TORRAS, Jaume (1996), “Productes vitícoles i integració mercantil a Europa, segles XVI–XVIII. Una panoràmica”, *Estudis d’Història Econòmica*, núm.14, 1996, pp. 23–33.
- VALLS Francesc (1999), “De la botiga de teles a la fàbrica d’indians. Aproximació a la trajectòria inversora d’uns negociants catalans del segle XVIII”, in *La industrialització i el desenvolupament econòmic d’Espanya. Homenatge a Jordi Nadal*, Barcelona, Universitat de Barcelona, vol. II, pp. 936–964.
- VALLS Francesc (2004), *La Catalunya atlàntica. Aiguardent i teixits a l’arrencada industrial catalana*, Vic, Eumo.
- VALLS Francesc (2011), “Llenços nòrdics per estampar a les fàbriques d’indians de

Barcelona. La botiga de Francesc Jener, 1772–1780”, in Alex SÁNCHEZ (Coord.), La indústria de les indianes a Barcelona, 1730–1850. *Barcelona, Quaderns d’Història*, 17, 2011, pp. 301–316.

Acknowledgements

Professor Rossa Ó Muireartaigh and professor Richard Mark Nixon checked the text of this article.